

NEW *HETEROPOGON* LOEW, WITH A KEY TO THE  
SPECIES AND THE DESCRIPTION OF A  
NEW GENUS (DIPTERA: ASILIDAE)

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In a previous paper (Wilcox 1941), a key was given to the species of *Heteropogon* Loew occurring in America north of Mexico. Included was *Pycnopogon cirrhatus* Osten Sacken which was considered not to be a good *Pycnopogon*. Martin (1962) placed *Pycnopogon divisus* Coquillett from Mexico in *Heteropogon*, so the genus *Pycnopogon* is now restricted to the Palearctic Region.

Several errors or changes in status of the species have become evident since the previous paper. The specimens identified as *Heteropogon ludius* Coquillett from Washington are assigned to *senilis* Bigot now that material is available from California. *H. ludius* Coquillett is a well defined species occurring mainly in southern California; Back (1909) thought this species might be a synonym of *senilis* Bigot. The specimens previously identified as *senilis* Bigot from southeastern Oregon are placed in *martini* new species. The specimens from southern Arizona without scutellar bristles identified as *rubidus* Coquillett apparently represent a new species but are not described because of their poor condition. *Heteropogon nigripes* Jones from Nebraska is still not included as it appears to belong in *Eucyrtopogon* Curran; no *Heteropogon* have been seen from Nebraska but a *Eucyrtopogon* from there fits Jones's description quite well.

Martin (1962) has reviewed and given a key to the Mexican species. He has also called attention to the plumose hairs on these flies and has indicated that the Palearctic species can be grouped on their presence or absence. All of the Nearctic species (*rubidus* Coquillett and *phoenicurus* Loew have not been examined) have these hairs on the frons, occiput, neck, pleura, abdomen and legs. The main variation occurs on the face and mesonotum. Several species were found with smooth hairs on the upper face but usually a few plumose hairs were found laterally. Six species were found without plumose hairs dorsally on the mesonotum but a few were found laterally behind the humeri, they are: *macerinus* Loew, *rubrifasciatus* Bromley, *spatulatus* Pritchard, *paurosomus* Pritchard, *duncani*

Wilcox, and *stonei* new species. *Chiricahua* new species almost belongs in this group and has many less plumose hairs on the mesonotum than the related species, *currani* Pritchard.

Most of the Nearctic species have the male middle tibiae adorned at the middle or basal third with a dense brush of black hairs. The middle femora usually has a ventral brush of black hairs at the apical third and the dorsal apical anterior surface is covered with short dense black hairs. Species without the tibial brush are: *lautus* Loew, *johnsoni* Back, *rubrifasciatus* Bromley, *paurosomus* Pritchard, *duncani* Wilcox, and *stonei* new species. In these species the ventral brush on the femora is also absent but the short black apical hairs may be present or not.

These flies perch mainly on the tips of dead twigs of various trees and shrubs. Linsley (1960) found that *johnsoni* Back preferred grass stems and perched with the head down. He collected 83 specimens with prey and says, "they captured both flying and crawling prey, which consisted primarily of small beetles and bugs." His Plate 52 shows four individuals resting on grass stems with prey.

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#### **Pritchardomyia**, new genus

Head  $1\frac{1}{2}$  times as broad as high; face at antennae subequal to width of one eye, moderately gibbose the gibbosity reaching antennae, face and frons but slightly widening from antennae; mystax composed of a double row of oral bristles, hairs above reaching antennae; palpi 2 segmented; proboscis in length subequal to height of head; antennal segments 1-2 subequal in length; third broadest at middle and slightly narrowed at base and apex,  $1\frac{1}{3}$  times length of segments 1-2; style slender, 2 segmented, about  $\frac{2}{3}$  length of third segment.

Thorax broad, not highly arched; mesonotum with strong lateral

bristles and weak posterior dorsocentrals; scutellum pollinose, the disc with erect hairs and the posterior margin with 12-14 weak bristles.

Abdomen broad, tapering apically (slightly in male), with 8 segments, segment 1 with weak lateral bristles, hairs short erect numerous on the sides becoming shorter on the dorsum of the segments; male genitalia small, inverted (rotate), almost concealed by the eighth segment; apex of female with circlet of blunt spines.

Legs moderately stout, empodia and pulvilli present, all tibiae at apex ventrally with a row of 5 or more short straight bristles.

Wings with the marginal and 5 posterior cells broadly open, anal cell narrowly open, third vein branched well beyond the end of the discal cell.

*Genotype: Anisopogon vespoides* Bigot.

Most closely related to *Callinicus* Loew, differing mainly in lacking the two strong inwardly directed spines at the apex of the middle tibiae. In *Callinicus* also, the third antennal segment is rather slender and  $1\frac{1}{2}$  to  $1\frac{4}{5}$  times the length of segments 1-2, the style is broad basally narrowing to apex and about  $\frac{1}{4}$  length of the third segment, and the disc of the scutellum is with none or a few short hairs.

The plumose hairs and non-rotate male genitalia of *Heteropogon* will separate it from both of the above genera.

*Pritchardomyia vespoides* (Bigot)

*Anisopogon vespoides* Bigot, 1878, Ann. Soc. Ent. de France, 8:423.

Type ♂, California, Hope Museum, Oxford.

*Heteropogon vespoides* Back, 1909, Trans. Amer. Ent. Soc., 35:329.

Translation of original description.

*Heteropogon vespoides* Wilcox, 1941, Bull. Brooklyn Ent. Soc., 36:

52. Description of female, CAS.

In the previous description of a greased specimen the color of the pollen was not determined. Face and frons, yellowish brown; occiput, yellowish gray; mesonotum brown subshining, laterally behind suture, golden; pleura yellowish gray, subshining; scutellum golden the posterior margin subshining; ground color of abdomen black, sides of segments and apical segments reddish brown, the posterior margins expanded at the middle on apical segments bright dense yellow pollinose on male segments 1-6 and female 1-5. Length 18-26 mm.

Collected mostly on the coast north and south of San Francisco and in the Bay area. A few have been taken in the mountains to the east at elevations up to 2500 feet. Burdick (1943) found them on the cliffs above the ocean flying from six to twenty feet high and diving for their prey and resting on bare spots on the ground with their prey. Paul H. Arnaud, Jr., collected two specimens on oak foliage and F. E. Blaisdell labeled one specimen "blue tarweed." Occurs mostly in August and September, but one was collected in July.

This is the only species, but Eric Fisher has a female specimen collected in the San Jacinto Mts. in southern California which shows considerable variation and may be a second species.

#### KEY TO THE SPECIES OF *Heteropogon*

1. Scutellum without marginal bristles, disc bare, marginal hairs short . . . . . 2  
    Scutellum with marginal bristles, sometimes obscured by the long marginal hairs . . . . . 3
2. Wings brown, somewhat lighter in the anal and axillary cells; scutellum wholly pollinose; ♂ genitalia not enlarged; length 10-16 mm. (Texas, Arizona) . . . . . *patruelis* (Coquillett)  
    Wings with small brown clouds on the crossveins and furcations; posterior margin of scutellum subshining black, disc pollinose; ♂ genitalia enlarged; length 10-14 mm. (Colorado, Arizona, Montana, Utah) . . . . . *maculinervis* James
3. Scutellum largely pollinose, sometimes thinly so and subshining black, but never polished . . . . . 4  
    Apical two-fifths or more of the scutellum polished black; smaller, less pilose species with the abdomen in part reddish or yellowish, especially apically . . . . . 21
4. Femora reddish, sometimes only ventrally; abdomen in part reddish . . . . . 5  
    Femora black; abdomen usually all black . . . . . 7
5. Femora black above, brownish below; abdominal segments 2-6 largely reddish brown; wings a smokey-gray; length 14-17 mm. (California) . . . . . *rubidus* (Coquillett)  
    Femora reddish or reddish brown; abdomen reddish apically or on the posterior margins of the segments; wings with brown clouds apically . . . . . 6

6. Posterior margins of abdominal segments 2-6 and 7 entirely, reddish; male middle tibiae without brush of black hairs; wings faintly tinged with brown, darker along anterior portion of apical half; length 10-15 mm. (North Carolina, Georgia) . . . . .  
 . . . . . *rubrifasciatus* Bromley  
 Abdomen black but sometimes with lateral and posterior margins and apical segments, reddish brown; male middle tibiae with brush of black hairs; wings brown apically and basally in the costal cell; length 10-12 mm. (New Jersey, District of Columbia, Iowa, Kentucky, Maryland, New York, Pennsylvania) . . . . .  
 . . . . . *macerinus* (Walker)
7. Wings largely brown or with brown clouds on the crossveins and furcations . . . . . 8  
 Wings hyaline, sometimes brown above discal cell especially in the females . . . . . 12
8. Wings largely brown . . . . . 9  
 Wings with brown clouds on the crossveins and furcations or above and basal to discal cell . . . . . 10
9. Basal half of the wings except extreme base, hyaline, apex black; style longer than third antennal segment; mesonotum white and yellowish pollinose; length 9-12 mm. (Texas) . . . . .  
 . . . . . *phoenicurus* Loew  
 Basal two-thirds of the wings brown, the apex hyaline; style three-fourths length of third antennal segment; mesonotum largely brownish pollinose; length 10-18 mm. (California) . . . . .  
 . . . . . *ludius* (Coquillett)
10. Mystax white with a row of black oral bristles; wings brown above and around the discal cell; style subequal in length to the third antennal segment; length 10-12 mm. (California) . . . . .  
 . . . . . *tolandi* new species  
 Mystax black, a few white hairs above especially in the females; wings with small brown clouds on the crossveins and furcations . . . . . 11
11. Wings hyaline apically; face, frons and mesonotum light brown pollinose; style of antennae four-fifths length of third antennal segment; length 10-14 mm. (Oklahoma) . . . . *currani* Pritchard  
 Wings brownish-black apically; face and frons thinly golden pollinose, mesonotum largely subshining brown; style subequal in length to the third antennal segment; length 9-14 mm. (Arizona) . . . . . *chiricahua* new species

12. Abdomen at least with small pollinose spots on the hind angles of segments 2-4 . . . . . 13  
 Abdomen bare of pollen . . . . . 17
13. Abdomen with pollinose spots on the hind angles of segments 2-4 . . . . . 14  
 Abdomen largely pollinose or with anterior or posterior bands on several segments . . . . . 15
14. Mystax all white; style subequal in length to the third antennal segment; hairs and bristles except a few on legs and tarsi, white; length 10-12 mm. (Arizona, New Mexico) . . *cazieri* new species  
 Oral bristles black, hairs above white; style two-thirds length of third antennal segment; hairs white, leg bristles largely and bristles of occiput, neck and scutellum usually, black; length 12-14 mm. (Nevada, California, Oregon) . . *martini* new species
15. Segments 1-5 of female abdomen and male wholly, whitish pollinose; mystax white; head and thorax white pollinose, bristles white except some on the tarsi, black; length 12-16 mm. (Colorado, Arizona, New Mexico) . . . . . *wilcoxi* James  
 Anterior or posterior margins and sides or posterior corners of most abdominal segments pollinose; oral bristles black, hairs above white . . . . . 16
16. Posterior corners of abdominal segments 2-4 and anterior margins of 2-5, gray pollinose; ♂ middle tibiae with brush of black hairs; length 11-16 mm. (Arizona, Utah) . . *arizonensis* Wilcox  
 Sides and posterior margins of male abdominal segments 2-6 and female 2-5, gray pollinose; male middle tibiae without brush of black hairs; length 9-12 mm. (Texas) . . . . . *lautus* Loew
17. Abdomen dorsally with dense recumbent lighter hairs on some or all of the segments . . . . . 18  
 Abdomen with short hairs dorsally, usually with long hairs laterally on the basal segments and sometimes on the posterior corners . . . . . 20
18. Scutellum bare of pollen with dense long erect marginal and discal hairs more or less concealing the marginal bristles; abdomen with white or yellowish recumbent hairs on the posterior margins of most segments; male middle tibiae without brush of black hairs; length 10-15 mm. (Colorado, Arizona, New Mexico, Texas) . . . . . *johnsoni* (Back)  
 Disc of scutellum pollinose and with sparse hairs, posterior mar-

- gin with long or short hairs but not concealing the marginal bristles; male middle tibiae with brush of black hairs . . . . . 19
19. Abdominal segments 1-7 of male, 1-5 of female, covered with dense recumbent golden hairs, fine long and sparse in some females; black bristles of mystax extend nearly half way to antennae, hairs brownish below, white above; style four-fifths length of third antennal segment; length 8-12 mm. (California, Nebraska, Oregon, Washington) . . . . . *cirrhatus* (Osten Sacken)  
Abdomen dorsally with short black hairs, posterior margins with fine white hairs, sides with long white hairs and males dorsally on segments 6-8; mystax all white; style two-thirds length of third antennal segment; length 13-17 mm. (Arizona, California) . . . . . *davisi* new species
20. Abdomen dorsally with short black hairs, posterior corners of male 2-5 and female 2-4 with longer white hairs and anterior corners with short erect black hairs; male frons and female frons in part and posterior mesonotum, black haired; length 10-15 mm. (California, Oregon, Washington) . . . . . *senilis* (Bigot)  
Male abdomen dorsally with short black hairs and the posterior margins with short recumbent golden hairs, female segments 1-4 with short appressed yellowish white hairs, sparse erect on apical segments; frons and mesonotum white haired; length 9-11 mm. (California) . . . . . *fisheri* new species
21. Second and following abdominal segments largely yellowish, male abdomen spatulate; middle femora of males with small brush of black hairs; legs vary from largely black to largely reddish; mesonotal and abdominal hairs sparse; anterior apical half of wings brown; length 9-12 mm. (Arizona; Sonora, Mexico) . . . . . *spatulatus* Pritchard  
Apical abdominal segments reddish, male abdomen not spatulate; male middle tibiae without brush of black hairs . . . . . 22
22. Hind femora and usually middle ones, reddish below; wings dark brown, anal and basal cells lighter; 2-4 yellowish marginal scutellar bristles; length 8-9 mm. (Arizona) . . *duncani* Wilcox  
Femora black except at tip; 4-6 scutellar bristles . . . . . 23
23. Mystax white, sometimes with 4 slender black bristles below; wings hyaline, crossveins and furcations especially costally, clouded with brown; male fore tarsi with posterior fringe of long hairs, white on metatarsi becoming black apically; length 8-9

mm. (Arizona) . . . . . *paurosomus* Pritchard  
 Oral bristles black and hairs brownish, hairs above white; wings  
 brown, lighter in the basal two-fifths; male fore metatarsi with  
 sparse white hairs dorsally, black on apical segments: length 8-9  
 mm. (Arizona, New Mexico, Utah) . . . . . *stonei* new species

**Heteropogon cazieri**, new species

*Male*: Length 10 mm. Head black, face and frons thinly, occiput  
 densely, gray pollinose. Mystax white (one black bristle on oral  
 margin); face 4/5 width of one eye; frons white haired; 4 white  
 bristles on ocellar tubercle; occipital bristles and hairs white; hairs  
 on palpi largely black. Antennae black, thinly gray pollinose; hairs  
 on segments 1-2 and bristle below on 2, white; 3 tapers from base to  
 apex; segments measure 7-8-21-15.

Mesonotum black; anterior and lateral margins, narrow dorso-  
 central stripes and transverse suture, gray pollinose, remainder  
 brown pollinose. Hairs white, long erect anteriorly, laterally and in  
 dorsocentral rows. Bristles white, 3 humeral, 4-5 presutural, 5  
 supraalar, 2 postalar. Pleura and coxae gray pollinose, hairs white.  
 Scutellum thinly brown pollinose, hairs white, 4 white marginal  
 bristles.

Abdomen black, posterior angles of segments 2-4 with a gray pol-  
 linose spot. Hairs white, long and dense on sides and venter, dorsally  
 short sparse appressed yellowish. Three white lateral bristles on seg-  
 ment one. Genitalia black, sparse white haired, hypandrium golden  
 haired.

Femora black, tibiae and tarsi reddish. Hairs and bristles white, a  
 few black bristles on outer tarsal segments and a brush of black hairs  
 on middle femora and tibiae. Fore metatarsi with white appressed  
 hairs dorsally, less numerous on outer segments. Claws and empodia  
 black, pulvilli brown.

Halteres yellow, stem brown. Wings hyaline, veins light brown,  
 anterior crossvein slightly beyond middle of discal cell.

*Female*: Length 10 mm. Abdominal segments 6-8 polished black,  
 short sparse erect hairs yellowish; apical spines black.

*Holotype*: Male, 7 mi. E. Portal, Arizona, 23 Oct. 1962 (J. Wil-  
 cox).

*Allotype*: Female, same data, 18 Sept. 1962.

*Paratypes*: 18 ♂♂, 16 ♀♀, same data, (Itol J. and J. Wilcox);  
 34 ♂♂ ♀♀, 2.3 mi. N. Rodeo, New Mexico, 6 to 28 Sept. 1960 and  
 1.9 mi. N.W. Rodeo, New Mexico, 6 Oct. 1961 (Mont A. Cazier) on



*Ephedra trifurca* Torr., ASU; one ♂, 3 mi. W. Santa Rosa, Guadalupe Co., New Mexico, 17 Aug. 1962 (Eric Fisher) EF; 14 ♂♂, 11 ♀♀, one mi. N. Rodeo, New Mexico, 10 Oct. 1964 (Eric Fisher) EF. This species rests in a horizontal position and was collected on *Ephedra* along with *johnsoni* Back. The two species could be separated at quite a distance as *johnsoni* rests with its head down as reported by Linsley 1960.

***Heteropogon chiricahua*, new species**

*Male*: Length 11 mm. Head black, face and frons thinly golden pollinose, occiput yellowish gray. Mystax composed of long black hairs extending to antennae with a few white intermixed above; face subequal to width of one eye. Frons with erect black and white hairs; ocellar tubercle with 3 slender black bristles and several white hairs; occipital bristles black, hairs white with a thin fringe of black ones around eyes; hairs on palpi black, on proboscis white. Antennae black, brownish pollinose, segments 1-2 black haired, 2 with a black bristle below; 3 tapering from base to apex; segments measure 9-8-20-20.

Mesonotum black, brownish pollinose, central stripe and intermediate area subshining brown, transverse suture whitish towards center. Hairs sparse erect white. Bristles black, 3 humeral, 4 presutural, 3 supraalar, 3 postalar (White). Pleura and coxae brownish pollinose, subshining, hairs white. Scutellum brown pollinose, sparse white haired, 2 black marginal bristles.

Abdomen black, small spots on posterior corners of segments 2-4, gray pollinose. Hairs white on sides and venter; dorsal hairs short black, somewhat longer and erect on sides of 2-7. Three white lateral bristles on segment one (one black). Genitalia black, sparsely white haired, hypandrium sparsely golden haired.

Femora black, tibiae and tarsi reddish. Bristles black, white posteriorly on fore and middle tibiae and fore metatarsi. Hairs white, middle femora and tibiae with brush of black hairs. Claws and empodia black, pulvilli brownish.

Halteres yellowish, base brown. Wings hyaline, crossveins and furcations and a large apical spot brownish black. Veins brown, anterior crossvein at  $\frac{5}{8}$  length of discal cell.

*Female*: Length 12 mm. More white hairs in upper part of mystax; frons largely white haired. One of the scutellar bristles white. Abdominal segments 6-8 shining black with sparse erect white hairs; apical spines brown.

*Holotype*: Male, Chiricahua National Monument, Arizona, 22 Oct. 1962 (J. Wilcox).

*Allotype*: Female, same data.

*Paratypes*: 15 ♂♂, 73 ♀♀, same data and 21 Oct. 1962 (Itol J. and J. Wilcox). Collected on dead twigs of walnut, oak, acacia and pine 6 to 8 feet or higher, at the mouth of the canyon leading in to the Monument.

#### **Heteropogon davisii**, new species

*Male*: Length 13 mm. Head black, densely grayish white pollinose. Mystax white extending to antennae, face 4/5 width of one eye; frons, occiput and beard white haired; occipital bristles and 4 on ocellar tubercle white; hairs on palpi in part black. Antennae black, golden pollinose; segments 1-2 white haired, 2 with a white bristle below; 3 tapers from base to apex; segments measure 7-7-30-20.

Mesonotum black, brown pollinose, the anterior and lateral areas and transverse suture, gray pollinose. Hairs white, confined mainly to anterior and lateral areas. Bristles white, 3 humeral, 6 presutural, 3-4 postalar, 3-4 supraalar, one weak dorsocentral. Pleura and coxae gray pollinose, hairs white. Scutellum grayish brown pollinose, 8 white marginal bristles plus a few hairs, disc bare.

Abdomen black; short black hairs dorsally on segments 1-5 with scattered white hairs posteriorly on 2-5 and anteriorly on 5; long erect white hairs on venter and laterally on 1-4, long appressed white hairs on sides of 4-5 and wholly on 6-8. Six white lateral bristles on one. Genitalia shining black, sparse hairs yellowish, fringe on hypandrium yellow.

Femora black, tibiae yellowish red, tarsi reddish becoming darker apically. Bristles white, on tarsi largely black. Hairs white, black brush on middle femora and tibiae. Claws and empodia black, pulvilli light brown.

Halteres yellowish red, base brown. Wings hyaline, veins yellowish brown, anterior crossvein at 6/11 length of discal cell.

*Female*: Length 17 mm. Two scutellar bristles (some may have been broken off). Long white hairs confined to abdominal segments 1-4, appressed white hairs on sides of 2-4 and basally on 5, the short hairs dorsally yellowish, appressed on basal segments, sparse erect apically on 5 and 6-8; apical spines brown. Wings with a light brown clouding above discal cell.

*Holotype*: Male, Sabino Cyn., Santa Catalina Mts., Arizona, 25 Oct. 1962 (J. Wilcox).

*Allotype*: Female, same data.

*Paratypes*: 4 ♂♂, same data, 19, 20 Oct., 1962 (J. Wilcox), 4 ♂♂, 4 ♀♀, same data, 8 Nov. 1962 (E. G. Davis); 7 ♂♂, 15 ♀♀, Pima Cyn., Santa Catalina Mts., Arizona, 10 Nov. 1962 (E. G. Davis); 4 ♂♂, 3 ♀♀, 12 mi. N. Tucson, Arizona, 9 Nov. 1962 (E. G. Davis); 4 ♂♂, 2 ♀♀, 7-8 mi. N. Tucson, Arizona, 6, 18 Oct. 1964, 8 Nov. 1962 (E. G. Davis); one ♀, Sierritas Mts., Arizona, 25 Nov. 1962 (E. G. Davis); 3 ♂, one ♀. Grey's Mdw., Independence, California, 23 Aug., 15 Sept. 1963 (J. Wilcox); ♂, 2 mi. E. Convict Lake, Mono Co., California, 13 Aug. 1959 (J. A. Chemsak) UCB; ♂♀, 5 mi. S. Olancha, Inyo Co., California, 9 Sept. 1956 (J. A. Chemsak) UCB; ♂, Freeman Gulch, Kern Co., California, 8 Sept. 1956 (P. D. Hurd) UCB; ♂, Bishop, Inyo Co., California, 4 Sept. 1956 (R. M. Bohart) UCD; ♀, Benton, Mono Co., California, 20 July 1950 (H. A. Hunt) UCD. Collected on mesquite 8 feet or higher in Arizona and in California on sage 3 or 4 feet high.

Some of the California specimens have 8-9 white dorsocentral bristles, 4-5 of which are anterior. Three posterior dorsocentral were the most found on Arizona specimens.

#### **Heteropogon fisheri**, new species

*Male*: Length 11 mm. Head black; face white pollinose with slight brownish tinge; frons brown, white laterally; occiput white, somewhat golden above. Lower fourth of mystax formed of black bristles, sparse fine white hairs above to antennae; frons white haired, black along eye margins; ocellar tubercle with 3 short white and one black bristles; occipital bristles black with numerous white hairs intermixed; beard, hairs on palpi and proboscis white. Face at antennae 37/44 width of one eye. Antennae black, golden pollinose, hairs below white, largely black above; one black bristle below on segment 2; segments measure 7-8-22-22; segment 3 tapering to apex.

Mesonotum black, brown pollinose, humeri and suture gray. Hairs dense white, semierect and as long as antennal segments 1-2; 7-8 black hairs in dorsocentral rows. Bristles black, 3-4 humeral, 2-3 post humeral, 4-6 presutural (one white), 4-5 supraalar, 4 postalar white (one black on one side). Pleura and coxae white pollinose with a golden cast, hairs white. Scutellum brown pollinose, hairs white, 8 black marginal bristles.

Abdomen dull black, sides of segment one and posterior corners of 2-4 yellowish gray pollinose. Hairs long white on sides of one, anterior corners of 2 and narrow lateral margins of all segments;

dorsum with short appressed black hairs; appressed yellowish on posterior corners of 2-4 and posterior margins of 5-7 and a very few on posterior margins of 2-4; 6-7 white lateral bristles on one. Venter grayish pollinose with dense long white hairs. Small genitalia black, proctiger brown, fringe on hypandrium golden, sparse hairs otherwise white.

Femora black, tibiae and tarsi reddish. Hairs largely white, short black dorsally on femora and in part dorsally on tarsi, middle femora and tibiae with brush of black hairs. Bristles largely black, a posterior row of white bristles on fore tibiae and metatarsi and middle tibiae with almost all white bristles. Claws and empodia black, pulvilli brown.

Halteres lemon yellow, lower stem brown. Wings hyaline, veins dark brown, anterior crossvein at 46/77 length of discal cell, anal cell narrowly open.

*Female:* Length 10 mm. Hairs of frons white, occipital bristles largely white. Five black marginal scutellar bristles. Posterior margins of abdominal segments 1-4 with short appressed golden hairs; anterior margins of 2-4 golden pollinose; segments 5-8 shining black with sparse short erect yellowish white hairs; apical spines black. Hairs of femora white except dorsally on fore ones; hind tibiae and metatarsi with anterior row of white bristles. Wings faintly brown at base of and above discal cell.

*Holotype:* Male, Beverly Glen Cyn., Santa Monica Mts., Los Angeles Co., California, 20 Sept. 1964 (Eric Fisher) LACM.

*Allotype:* Female, same data.

*Paratypes:* 13 ♂♂, 20 ♀♀, same data and 9 Sept. 1963; 10 ♂♂, 4 ♀♀, Sepulvidea Cyn., Santa Monica Mts., Los Angeles Co., California, 15 Aug. 1960, 1 Sept. 1962 (Eric Fisher); one ♂, Franklin Cyn., Santa Monica Mts., Los Angeles Co., California, 26 Sept. 1962 (Eric Fisher); one ♂, Saugus, Los Angeles Co., California, 1 Oct. 1960 (Eric Fisher) EF; 8 ♂♂, 4 ♀♀, Peralta, 4 mi. E. Olive, Orange Co., California, 19, 24 Sept. 1942 (Guy F. Toland, J. Wilcox).

#### ***Heteropogon martini*, new species**

*Male:* Length 14 mm. Head black; face and frons thinly and occiput densely, gray pollinose. Oral bristles black, white hairs above reaching antennae; face subequal in width to one eye. Hairs on frons white; 4 white bristles on ocellar tubercle; occipital bristles black, hairs white; hairs on palpi black. Antennae black; segments 1-2 with white hairs below, black above, 2 with a bristle below, white on one

and black on other; 3 tapers from base to apex; segments measure 9-10-28-20.

Mesonotum black, thinly gray pollinose, the central stripe and intermediate spots brown. Hairs white, confined to anterior and lateral margins. Two black humeral bristles, 6 presutural (2 white, 4 black), 4-6 supraalar black (one white), 5 postalar white, one dorsocentral white. Pleura and coxae thinly gray pollinose, hairs white. Scutellum thinly gray pollinose, sparse white haired, 3 white marginal bristles.

Abdomen black; sides of segment one and a small spot on posterior corners of 2-4, gray pollinose. Hairs on sides and venter long white, dorsal hairs short appressed golden. Seven white lateral bristles on segment one. Genitalia black, sparse white haired, hypandrium golden haired.

Femora black, tibiae red, tarsi brown. Bristles black, a posterior row on fore tibiae and mostly on middle and hind tibiae, white. Hairs largely white, short appressed dorsally on fore tarsi; middle femora and tibiae with brush of black hairs. Claws black, empodia and pulvilli brown.

Halteres yellow, stem brown. Wings hyaline, veins brown, anterior crossvein at about  $\frac{2}{3}$  length of discal cell.

*Female*: Length 14 mm. Antennal and occipital bristles white. Four black scutellar bristles. Abdominal segments 5-8 shining black, sparse hairs white; apical spines brown. Wings hyaline, most of the veins margined with brown.

*Holotype*: Male, Montgomery Pass, Nevada, 6 July 1958 (Guy F. Toland).

*Allotype*: Female, same data.

*Paratypes*: 17 ♂♂, 22 ♀♀, same data (Dorothy and C. H. Martin, Guy F. Toland, J. Wilcox); 6 ♂♂, 7 ♀♀, 13 mi. N. Topaz Lake, Nevada, 1 July 1963 (J. Wilcox); one ♀, Topaz Lake, Mono Co., California, 17 July 1951 (A. T. McClay) UCD, 4 ♂♂, 7 ♀♀, same locality, 26 June 1957 (J. W. MacSwain, A. E. Pritchard) UCB. Collected mostly on sage three to six feet high. Several were collected on pine foliage where they had apparently gone to consume their prey.

Specimens not in paratype series, 3 ♂♂, ♀, Virginia Vly., 30 mi. of Follyfarm, Oregon, 3 July 1927 (H. A. Scullen).

#### **Heteropogon tolandi**, new species

*Male*: Length 10 mm. Head black; gray pollinose, the vertex

brown. Oral bristles black, long sparse hairs above white; frons white haired; ocellar tubercle with 4 white bristles; occipital bristles and hairs white; hairs on palpi and proboscis black. Face  $7/9$  width of one eye. Antennae black, segments 1-2 white haired below, black above; 2 with a black bristle below; 3 tapering from base to apex; segments measure 7-8-21-20.

Mesonotum black, subshining brown pollinose, laterally and anteriorly thinly gray pollinose. Hairs white, confined to lateral and anterior areas. Bristles: 2-3 humeral, 4 supraalar and 3 dorsocentral black; 4 presutural and 3 postalar white. Pleura and coxae yellowish gray pollinose, hairs white. Scutellum brown pollinose, posterior margin centrally subshining black; 4 black marginal bristles and a few white hairs, disc bare.

Abdomen black; hairs white and long laterally on tergites 1-3 and on venter, short appressed black dorsally, sides of segments 2-5 and dorsum 6-8 appressed golden. About 7 white lateral bristles on one. Genitalia black and brown, hypandrium with a golden fringe.

Femora black, tibiae and tarsi reddish. Bristles black, a posterior row on fore and middle tibiae white. Hairs white; brush of black hairs on middle femora and tibiae. Claws and empodia black, pulvilli brown.

Halteres yellow, base brown. Wings hyaline with an anterior brown cloud above the basal half of the discal cell; veins brown, anterior crossvein at  $5/9$  length of discal; anal cell closed at margin.

*Female*: Length 12 mm. Abdominal segments 5-8 more shining than basal segments with fine sparse erect yellowish hairs; apical spines brown. Brown of the wings more extensive, bordering the veins around the discal and posterior cells 4-5; anal cell open.

*Holotype*: Male, Pinyon Flat, Riverside Co., California, 17 Sept. 1948 (J. Wilcox).

*Allotype*: Female, same data.

*Paratypes*: 10 ♂♂, 9 ♀♀, same data (Guy F. Toland, J. Wilcox).

#### ***Heteropogon stonei*, new species**

*Male*: Length 8 mm. Head black, densely gray pollinose. Mystax with a row of oral bristles and two above, black; oral hairs brownish those above white; hairs on frons white; 4 white bristles on ocellar tubercle; occipital bristles white centrally, black laterally; occipital hairs white, of palpi black. Face  $3/4$  width of one eye. Antennae black, brownish pollinose, first two segments black haired, second with a

black bristle below, third slightly tapering apically, segments measure 6-8-22-11.

Mesonotum black; transverse suture, dorsocentral lines, all margins and central part anteriorly, gray pollinose; central stripe posteriorly and intermediate spots subshining, brownish pollinose. Hairs white, sparse, confined to anterior and lateral margins, and to dorsocentral and central stripes. Humeral bristles black. 2-3; remainder yellowish white, 5 presutural, 3-4 supraalar, 4-5 postalar, 4-5 posterior dorsocentral becoming weaker anteriorly. Pleura and coxae gray pollinose, hairs white. Apical 2/5 of scutellum polished black, base and narrow posterior margin, gray pollinose, 6 yellowish white marginal bristles.

Abdomen black, posterior margin of segments 5-6 and 7-8 wholly, reddish brown; posterior corners of 2-4 with small gray pollinose spots. Hairs white, long and dense laterally on 1-4, short sparse recumbent dorsally, long sparse ventrally. Bristles white, 3-5 laterally on one and some shorter ones anteriorly. Venter gray pollinose. Genitalia black, reddish brown at tip, sparse hairs yellowish, hypandrium with black fringe.

Femora black, reddish brown at tip, tibiae and tarsi reddish brown becoming darker apically. Hairs largely white, bristles largely black; fore tibiae with anterior, middle tibiae with anterior and posterior, and hind tibiae with anterior and dorsal rows of white bristles. Claws and empodia black, pulvilli brownish black.

Halteres light yellow, base brown. Wings brown, lighter in basal 2/5, veins brown, anterior crossvein at  $\frac{2}{3}$  length of discal cell.

*Female:* Length 9 mm. Dorsocentral and central hairs black; 2-3 dorsocentral bristles black, one on each side white. Four scutellar bristles. Posterior margin of abdominal segment 4, apical half of 5, and 6-7 wholly, reddish brown; segment 8 and apical spines, black.

*Holotype:* Male, Hualapai Mts., Arizona, 6000', 4 June 1962 (J. Wilcox).

*Allotype:* Female, same data.

*Paratypes:* one ♂, same data; 18 ♂♂, 17 ♀♀, Mingus Mt., Arizona, 17 June 1948, 3 July 1949 (M. W. Stone, J. Wilcox, Jr., J. Wilcox); one ♀, Grand Canyon, Arizona, 4 June 1963 (J. Wilcox); one ♂, Grants Co., New Mexico, 11 June 1937 (R. T. Kellogg); one ♀, Silver City, New Mexico, 30 June 1933 (R. T. Kellogg); one ♀, Beaver Cyn., Utah, 11 June 1946 (R. M. Bohart) UCD.

This species belongs in a group of rather small flies which are found in the southwest and are apparently related to *rejectus* Willis-

ton from Mexico, known only from a female specimen. The other Nearctic species found only in Arizona to date, are *duncani* Wilcox (April) and *paurosomus* Pritchard (August to October).

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